E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

VOL. 31 NEW YORK, APRIL 21, 1960 No. 16

THIS WEEK IN THE MARKETS...

- **Copper prices abroad firm, spot tight; 34.42c paid. U.S. slow. Record output.**
- **Yates investigates aluminum firms. Lead sales good. Hardy defends quotas.**

COPPER—U.S. average 33c a lb delivered

Copper tonnage priced in the U.S. this week was the highest since early March. Pricings outside the U.S. were down from the preceding week.

Demand for copper in the U.S. remained rather slow. Fabricators could get copper from merchants at under the producer and custom smelter prices but were not interested. This followed partly from the view that prices must come down and partly from the slip in their own sales. Though the brass mill business has been slow there have been reports recently that wire is also slowing up.

The Copper Institute reported record domestic primary output. World output was probably at a record also.

Demand abroad is very strong. Merchants can get 34½c for spot wire bars on the continent. Copper is being sent out of the U.S. to take advantage of good foreign prices. Sellers of copper who do not have "bonds" are reported splitting the 1.7c with those who do.

LEAD—12c a lb New York

Lead sales this week were 10,425 short tons. Total sales so far this month are already above the February and the March totals.

Royce Hardy, assistant secretary of the Interior, told a House Committee the present import quotas on lead and zinc would solve the U.S. miners' problem.

ZINC—Prime Western 13c a lb East St. Louis

Zinc sales this week were low. The low sales reflect the somewhat slower pace of the die casting and steel industries. In the former buyers are working with Special High Grade zinc they bought at the 1½c premium. In some cases they bought well ahead. But many users did not and their 1½c metal may run out soon. Some factors feel buyers will not buy 1¾c metal until they have to.

Most sellers say zinc is still the strongest of the nonferrous metals.

ALUMINUM—primary pig 26c a lb; export 23¼c

Pricing policies of the primary aluminum companies will be investigated by the Yates Committee—subcommittee no. 3 of the House Small Business Committee.

The committee will hold hearings beginning May 2 on complaints of small fabricators that they are being squeezed out by the large primary producers, on the primary producers "hot metal" contracts, including the Chrysler-Alcan "lease," mergers of the large primary producers with fabricators, and on the increasing scrap exports.

Independent aluminum extruders and foil makers have been pointing out publicly pricing policies which appear to be deliberately aimed at them. Secondary aluminum producers have been complaining about the contracts between the primes and large users in which the former deliver liquid metal at prices about 10% under announced pig prices—they also suggest that when actual pig prices are under announced pig prices the buyers of liquid metal get such discounts, too. The secondary producers claim the 10% lower price is much greater than the actual cost of "pigging" and that the prices are, therefore, unfair price cutting.

The Justice Dept. has sued to prevent a number of mergers which would have meant taking over of fabricators by large primary producers. There have been indications this merger move might be extended by some primes and it could profoundly affect the structure of the aluminum industries.

The increase in aluminum scrap exports could be a threat to the secondary industry and some fabricators. The large prime producers are buyers of scrap and reports suggest they have exported much of it. On some occasions they have bought scrap at well over the market price. By keeping scrap out of the hands of secondaries they could catch them in a cost-price squeeze.

The Yates Committee investigation generally appears aimed at the possibility the pricing policies and related action of the large primary producers is tending toward restraint of trade. Witnesses will be heard from the primes, secondaries, fabricators, trade association officials and possibly others. The hearings are a direct result of the increasing complaints by various non-primary aluminum industries recently against the policies of the primes.

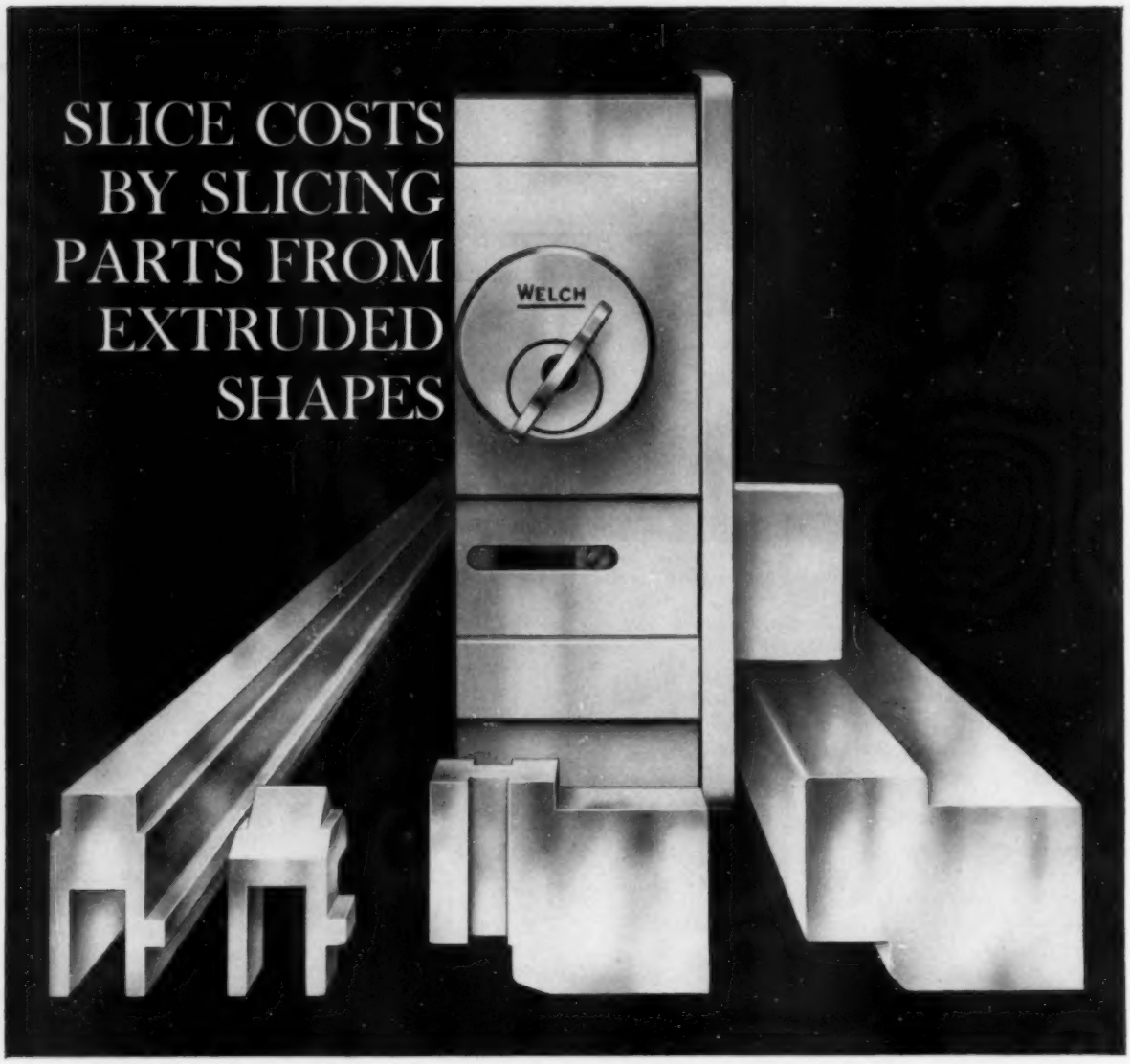
Of perhaps greater interest is the April 27 meeting of the Committee with officials of the Justice Dept. and the Federal Trade Commission. The Yates Committee normally communicates its findings to the Justice Dept. and the FTC. At the hearings it will find out what these agencies have been doing. It can make public the information from these agencies if it wishes—the agencies, especially Justice, will not make public its findings except when it brings suit against a firm.

In cases in which the agencies are working up cases against firms the Committee may decide to handle the hearings so as not to expose the agencies' information.

Aluminum Distributors Assn. data for the first quarter 1960 show drops from the last quarter of 1959 of 20% in shipments of sheet and plate, 5% for wire and rod, 5% for tubing and 6% for extrusions. Commerce Dept. figures on net shipments of aluminum mill products for February were 128,000 tons; January was 125,000.

March primary output was 170,658 tons, according to Aluminum Assn. figures.

SLICE COSTS BY SLICING PARTS FROM EXTRUDED SHAPES



Fabricating parts from long lengths of "premachined" shapes reduces machining, scrap, and finishing

The lock components shown above are typical of some 20 different precision brass parts which Welch, Inc., Waukegan, Ill., makes for its broad line of locks and latches, from Anaconda extruded shapes.

Welch works closely with Anaconda specialists from early design stages. New lock mechanisms are built around parts which can be cut by a metal slitting saw from long lengths of extruded shapes with minimum subsequent machining and scrap. The use of bar stock is never considered when there is the slightest possibility of designing savings into a part by means of a brass extrusion.

Superior quality, too. Parts made from extruded shapes are characterized by their strong, homogeneous, wrought-metal structure. And the smooth, extruded surfaces reduce many finishing operations.

More and more manufacturers are cutting fabricating costs *and* maintaining quality by using these preformed or, ir effect, "premachined" shapes. For imaginative and practical help in adapting extruded shapes to the economical production of intricate parts, call your Anaconda representative or write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 6044B

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E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

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Aluminum Scrap Output Will Increase Rapidly ASRI Reports

Within 30 years, recovery from aluminum scrap alone will yield tonnages exceeding the nation's total 1959 production, predicts Carl H. Burton, secretary of the Aluminum Smelters Research Institute.

Every product manufactured today from aluminum goes to provide a vast national metal reserve which, Burton points out, through obsolescence and scrap recovery, will make available a ready supply of re-usable aluminum in future decades. He forecasts that, by 1990, those untapped reserves will total almost 100-million tons. In that same year, he said, scrap recovery will yield an estimated 2,175,000 tons.

The job of turning this growing array of aluminum waste into a wealthy national resource will fall largely to the aluminum smelting industry, which has been performing this task for the past half century. Currently, this $200-million industry recovers about 375,000 tpy and converts the material into alloys that total approximately 1/5 of U.S. aluminum production.

Smelters Develop New Alloys

To increase the uses of his product, the smelter seeks newer and more versatile blends. During the past 30 years, he has developed more than 50 new alloys and more than 400 variations to meet individual customer needs. The continuous research job has cost individual smelters more than $1-million, and several are spending up to $100,000 on specific current programs.

To meet the U.S.'s estimated aluminum demand of 9-billion lbs for 1975, would require: 36-billion lbs of bauxite annually (current mining rate: 16-million lbs); 90-billion kilowatt hours to extract the alumina (14% of the total current U.S. power production); and more than double the current U.S. production capacity. Instead, ASRI's Burton predicts a greater reliance on raw materials already within our grasp: the ever-mounting reserve of aluminum in the form of factory wastes and obsolescent products.

Burton points out that the rapid growth of recovered aluminum during the next 30 years will be largely due to the increased availability of old (obsolete products) scrap rather than new (scrap generated by fabrication). Today less than 1/4 of total scrap aluminum is recovered from obsolete products and more than 3/4 from scrap generated by industrial fabrication. The ratio will relatively soon begin a grand scale reversal, Burton claims.

As aluminum is used in more and more products with each passing year, the growth of obsolescent scrap will rise at a rate unparalleled by new scrap.

Old Scrap Rising

Within six years, he predicts, total recovery will reach 668,000 tons, with old scrap rising to 30% of the total. By 1970, industry can expect a recovery of 880,000 tons — 35% coming from old scrap. His forecast for 1980 shows a total of 1,465,000 tons recovered, with 44.5% from old scrap. Projecting his figures to 1990, he predicts that the total scrap aluminum supply of 2,175,000 tons will include 1,200,000 tons of obsolescent scrap recovered from products made yesterday, today and tomorrow.

To recover this metal and turn it into free alloys for U.S. industry, the smelters know that it's simply a waiting game. Unlike natural resource-based industries whose reserves can only be increased through costly prospecting and discovery, their reserves keep relentlessly growing more rapidly than depletion takes place.

Inevitably, as more aluminum products are replaced by even newer ones, more scrap will come rolling in. When it does, the nation's "mines-above-the-ground" will be ready — to change more waste into wealth.

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GSA To Sell Talc

General Services Administration will sell approximately 6,285 short tons of ground steatite talc from the national stockpile of critical and strategic materials.

The talc, derived from domestic sources, is of a type used for dies in the production of electron tube insulators.

The material is no longer needed for the defense purposes for which it was acquired. Since it is a national stockpile item, its disposal cannot be undertaken for six months.

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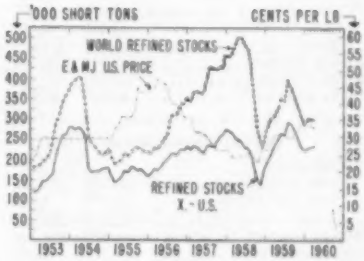
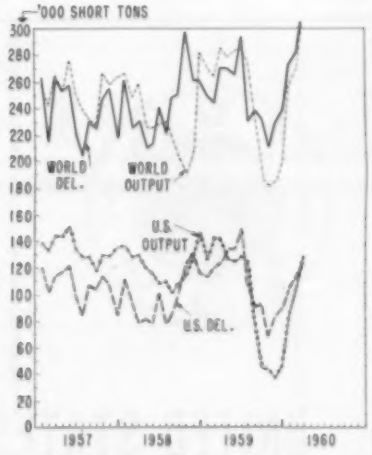
Copper Production and Stocks





Data, except price, are from the Copper Institute and are in thousands of short tons. They include March, 1960. World refined output and stocks do not include the U.S.S.R., Japan, the Scandinavian countries, Yugoslavia, and the Mesina Mine in Transvaal. The series "X-U.S." are the above world stock statistics less the U.S. No fabricator stocks are included. Beginning with Jan. 1960 the C. I. includes data for mines formerly excluded.

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Copper Output At Record

Copper Institute data show free-world copper mine and refined output at an all-time record in March. Each was for the first time over 300,000 short tons.

Copper Institute figures for February and March 1960 follow:

United States

Production:	Feb.	Mar.
Crude primary	(a) 85,899	107,995
Crude secondary	(a) 12,628	9,166
Total	(a) 98,527	117,161
Refined Copper	105,417	129,758
Deliveries refined	111,851	122,752
Stock, end, ref'd	64,007	61,598

Outside United States

Production:		
Crude primary	(a) 185,866	199,784
Crude secondary	1,950	3,032
Total	(a) 187,816	202,816
Refined copper	164,535	172,195
Deliveries refined	168,805	181,723
Stock, end, ref'd	238,344	239,192

(a) Revised

Metals Division of SLA to Meet in Cleveland in June

The Metals Division of the Special Libraries Association will be in session, during the 51st Annual Convention of the Association, in Cleveland June 5-8, 1960.

On Monday, June 6, at 2:30 pm, there will be a panel program on the topic: "Information Control and Retrieval Through Microfilm and Punch Card Techniques." Mrs. Moira C. Jones will preside. Panelists: "Correspondence" — Thomas Devlin, Esso Research and Engineering Corp.; "Engineering Drawings" — F. M. Parker, Westinghouse Electric Corp.; "Research Notebooks" — Miss Meredith S. Wright, Parma Research Center, division of Union Carbide Corp.

Wednesday, June 8, after a 10 am visit to the American Society for Metals, Metals Park, Novelty, Ohio, Mrs. Marjorie R. Hyslop and Miss Betty

(Continued on page 6)

GOLD
ZINC
CADMIUM
BISMUTH
SILVER
ANTIMONY
LEAD
ANTIMONIAL LEAD

UNITED STATES
SMELTING REFINING & MINING CO.

Sales Office: 62 WILLIAM STREET, NEW YORK 5, N. Y.

Miscellaneous Metals

Wholesale lots, (a) f.o.b. ship. pt.; (b) delivered; (c) f.o.b. N.Y.; (d) Dep. on size of lot; (e) dep. on grade; (n) nom.

ALUMINUM: lb (b) eff. 12-17-59, ingot:
99.50%.....28.1c 99.80%.....29.1c
99.75%.....28.6c 99.85%.....30.1c

ANTIMONY: cents per lb; dom., Apr. 14-20
boxed N.Y. (c) 32.590
bulk (a) ....29 boxed (a) 29.5
imported, 10 ton lots, 99%, duty not paid
Apr. 14....22¾-23 Apr. 19....22¾-23
Apr. 15....22¾-23 Apr. 20....22¾-23
Apr. 18....22¾-23
Import duty is 2c a lb. For 99½% metal add ½-¾c. For 99.6% metal add ¾-1c.

BERYLLIUM: 97%, (a), lb $71.50

BISMUTH: lb, ton lots $2.25

CADMIUM: lb (b) April 14-20
Ton lots, Eff. Jan. 7, 1960 .....$1.40
Less than ton lots $1.50
See Oct. 8, 1959, p. 12

CALCIUM: lb, ton lots, slabs, etc. $2.05

CHROMIUM: (b) lb of material,
exo. 98.5%, .05%C, ...(d)$1.15-1.19
Elec. 99.8% .....(d)$1.15-1.19
Vacuum melting .....4c more

COBALT: lb, (c), eff. 3-1-60
500 lb lots.....$1.50 100 lb lots.....$1.52
Less than 100 lb lots..$1.57 Fines..$1.50

COLUMBIUM: lb, 99½%, (d)
roundels ....$36 rough ingots $50

GALLIUM: gr, 1000-g lots $3.00

GERMANIUM: g
1000-g lots, 1st red .....29.5c(b)-30.15c(a)
intrinsic .....29.95c(b)-31.95c(a)
10,000-g lots, 1st red.....28.15c(a)-29.5c(b)
intrinsic .....29.95c(b)-29.95c(a)

INDIUM: tr oz, 99.9%, small lots $2.25
over 5,000 oz $1.35-2.25

IRIDIUM: tr oz $75-80

LITHIUM: lb 99.5% $9-11

MAGNESIUM: lb (a) 10,000 lb lots,
pig ingot 99.8% 35¼c-36.65c
notched ingot 36c-37.45c

MANGANESE: lb (b) 95½%, carloads,
bulk 45c
packed 45¾c
elec (a) frt. allowed E. of Miss., 99.9%..34c
ton lots eff. 4-1-57 .....36c
prem for hydrogen removed .....¾c lb

MOLYBDENUM: (a) eff. 8-56
powder, carbon red $3.35

NICKEL: lb (a) duty included 74c
eff. 12-6-56
dealers 74c
powder (b) U.S. 74c
sinter (nickel content) point of entry,
eff. 7-14-58 .....69.6c

OSMIUM: oz (n) $70-90

PALLADIUM: tr oz eff. 1-18-60....$24-28

PLATINUM: tr oz $81-85
average $82

QUICKSILVER: flask, N.Y. $214-16

RHODIUM: tr oz $137-40

RUTHENIUM: tr oz $55-60

SELENIUM: lb, 2-19-58, comm. grade $7
high purity $9.50

SILICON: lb (a) eff. 6-1-59
98% max. .51-1.0% Fe, crushed 20.85c
lump 19c
Hyper-pure: (4-1-57) #1.....$360
#2.....$250
#3.....$160
solar cell (4-1-57) .....$ 90

SODIUM: lb, carloads 16½c

TANTALUM: perlb,(a) (c),powder$30-58.60
sheet (c) $50.35-59.18
rod (c) $73.04-80.23

TELLURIUM: lb $3.00

THALLIUM: lb $7.50

TITANIUM: lb (a) A-1 99.3%
max. .15% Fe $1.60
max. .3% Fe. eff. 8-1-59 .....$1.50

TUNGSTEN: lb 98.8%
1000-lb lots .....$2.75-$2.90
Hydrogen red 99.99% $3.35-4.25
dep. on Fisher No. eff. 12-28-59

VANADIUM: lb, 90% V 100 lb lots..$3.45

ZIRCONIUM: lb (a) sponge, powder
platelets: low hafnium $7-14
comm.....$5-10

Metallic Ores

Tons of 2000 lb or units of 20 lb, unless otherwise stated. Short ton unit = stu; long ton unit = ltu. (a) c.i.f. U. S. ports, (b) f.o.b. ship pt., (c) f.o.b. mine or mill (g) depending on grade, (i) import duty extra, (n) nominal, (t) term contracts.

ANTIMONY ORE: stu of Sb:
50-55% ..... $2.25-$2.40
60% ..... $2.80-$2.90
65% lump ..... $3.30-$3.35

BERYLLIUM ORE: stu BeO, 10-12%
Dom. (c) – dep. on quan. ..... $46-$48
Imported (a), (t) ..... $34-$34.50
Spot (a) ..... $31.75-$32.50

CHROME ORE: lt, dry basis, subject to penalties if guarantees are not met, f.o.b. cars, Atlantic ports
Rhodesian: (t)
48% Cr_2O_3, 3 to 1 ratio..... (n) $35.75-$36.25
48% Cr_2O_3, 2.8 to 1 ratio..... (n) $32-$33.50
48% Cr_2O_3, no ratio..... (n) $27-$28
South African (Transvaal):
48% Cr_2O_3, no ratio..... (n) $25.50-$27
44% Cr_2O_3, no ratio ..... (n) $19.75-$20.50
Turkish (basis 48% 3 to 1):
48% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (n) $36-$37
46% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (n) $33.50-$34
Pakistan (Baluchistan):
48% Cr_2O_3, 3 to 1 ratio..... (n)

COBALT ORE: lb Co, free market
10% ..... (n) 60c
11% ..... (n) 70c
12% ..... (n) 80c

COLUMBITE ORE: lb pentoxide, 65% Cb_2O_5 and Ta_2O_5
Ratio 10:1 ..... $1.18-$1.25
Ratio 8½:1 ..... $1.05-$1.10

IRON ORE: lt, lower lake ports.
Lake Superior ore 1959:
Bessemer
Mesabi 51½% Fe..... $11.60
Old Range $11.85
Non-Bessemer
Mesabi 51½% Fe $11.45
Old Range $11.70
Eastern ores, ltu, delivered, foundry and basic, 56-62% ..... (n)
Swedish (t) (a) 60-68% stu (g)..... (n)
Brazilian (b) 68½% gross ton, premium for low P, 1-1-60..... $11.25
Smaller sellers $11

MANGANESE ORE: (a) (i) ltu.
Mn 46-48
Ind. Fe 10, P.15, Al+Si 13 ..... (n) 87c-90c
S. Af. Fe 9, P.05, Al+Si 13 ..... (n) 87c-90c
Mn 48-50, Braz. Fe 5, P.1, Al+Si 7, As .2 ..... (n) 91c

MOLYBDENUM ORE: lb cont.
Mo.: 95% MoS_2 (b): (eff. 1.1.58)
Climax, cost of container extra..... $1.25
Molybdic trioxide MoO_3, bags (b)..... $1.46
cans $1.47

TITANIUM ORE: Ilmenite, gross tons TiO_2, 59½% f.o.b. cars, Atlantic ports ..... $23-$26
54% f.o.b. cars ..... $21-$21.50
Rutile, 94% st. for del. within 12 mos. $80

TUNGSTEN ORE: stu WO_3 65% basis foreign ore, (i), nearby arrival
Wolfram ..... $19-$19.50
Scheelite ..... $19-$19.50
Low moly scheelite, higher
U.S. scheelite, stu. (c) ..... $22-$24
London, ltu, WO_3 good ore
Wolfram 147s6d

VANADIUM ORE: lb V_2O_5 cont (c):
Domestic 31c

ZIRCON ORE: (sand) lt, (a)
Atlantic:
65% ZrO_2 ..... $50
Domestic 66%, st, (b):
Jacksonville ..... no quote
Stark, Fla. $47.25

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MINING COMPANIES

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BRASS: Cents lb (base prices)

33c base:	Sheet	Wire	Rods
Yellow Brass	50.57	50.86	50.26
Best quality brass ..	52.07	52.36	51.76
Red brass 80%	53.53	53.82	53.22
Red brass 85%	54.58	54.87	54.27
Com'l bronze 90% ..	56.17	56.46	55.86
Gilding metal	57.23	57.52	56.92

Eff. 11-16-59

COPPER: lb, f.o.b. mill, eff. 11-9-59
Sheet, over 20" 57.13c
Rolls, 20" & under 56.41c
Wire, bare, carloads 58.35c

LEAD SHEETS: lb, full rolled..... 17½c

MONEL: lb, base prices
Cold-rolled sheet $1.20
Cold-rolled strip $1.08
Rods, hot-rolled $0.89

NICKEL: lb, base prices
Sheet, cold-rolled $1.38
Rods, hot-rolled $1.07

NICKEL SILVER: lb
Sheets, 10% 65.98c
18% 70.49c
Wire, Rods, 10% 68.06c

PHOSPHOR BRONZE: lb
Sheet, 5% Sn 77.44c
Wire, rods, 5% 78.19c
10% 84.93c

ZINC: lb, base prices, carloads, f.o.b. mill
Sheet 26c
Ribbon 21½c
Plates 20c

ZINC DIE CASTING ALLOY: lb, ingot
carloads, del.
No. 3 ..... 16½c
No. 5 ..... 16¾c

COPPER • ZINC

BUYERS: ORES, CONCENTRATES
SCRAP, RESIDUES
FOR PHELPS DODGE PLANTS
in Laurel Hill, L.L, N.Y.
Douglas, Ariz., El Paso, Tex.
FOR NATIONAL ZINC CO. (Subsidiary)
Bartlesville, Okla.
SELLERS: COPPER (Electrolytic)
CADMIUM, MERCURY
ZINC, BY-PRODUCTS

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Phelps Dodge Corporation

COPPER

Phelps Dodge Refining Corp.

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NEW YORK 22, N. Y.

P★D ELECTROLYTIC COPPER

PDM FIRE REFINED COPPER

LNS ELECTROLYTIC COPPER

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COPPER SULPHATE · NICKEL SULPHATE

SMELTERS: Morenci, Ariz.
Ajo, Ariz.
Douglas, Ariz.
Laurel Hill, N.Y.

REFINERIES: El Paso, Texas
Laurel Hill, N.Y.

PRECIOUS METALS
SELENIUM • TELLURIUM
COPPER PASTE (80% CU)

BUYERS OF BULLION, ORES,
CONCENTRATES, MATTES,
BLISTER, COPPER, SCRAP
METALS and RESIDUES

Metals Division

(Continued from page 4)

Bryan will describe the ASM Documentation Service. The tour will be followed by a talk: "Metals Meet the Challenge of the Space Age" – Dr. Allen D. Gray, editor, METAL PROGRESS.

After lunch, Dr. A. G. Guy, professor of metallurgy, School of Metallurgical Engineering, Purdue University, will speak on "Sources of Metallurgical Literature in the Soviet Union."

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Ferroalloys

(a) carload lots; (b) delivered; (c) lump, bulk; (d) f.o.b. shipping point; (n) nominal

FERROCHROMIUM: lb contained Cr; (a) (b) (c) cont. U.S.
High carbon (4-9% C, 65-70% Cr) Cr) 28.75c
Low carbon (0.10% C, 67-72% Cr) eff. Oct. 1, 1957 ..... 38.50c
Special (0.25% C, 63-66% Cr) eff. Jan. 22, 1960 ..... 35.75c
Charge chrome 1 ..... 22c
Refined chrome 1 ..... 25c

FERROCOLUMBIUM: lb contained Cb; ton lots, lump (2 in) packed; (b) cont. U.S.–(50-60% Cb. max 0.40% C, max 8% Si) $3.45

FERROMANGANESE: lb (a), (c), (d) (74-76% Mn)
Standard, eff. 1-19-60 ..... 11c
Medium Carbon- lb contained Mn; (a), (c), f.o.b. U.S. – (80-85% Mn, 1¼-1½% C) 24c
Low carbon-basis as for Med. Carbon- (85-90% Mn, Max. 0.07% C) 35.10c

FERROMOLYBDENUM: lb Mo; lots 5000 lb or more, (d) (58-64% Mo) powdered, packed $1.82
Other sizes, packed $1.76
Calcium Molybdate (CaO MoO3) lump, packed $1.50

FERROPHOSPHORUS: per gross ton; (a), (c), (max 6 in.); (d) (equivalent to Tenn.) (23-26% P) $110
plus $4 per 1% above or below 24%.

FERROSILICON: lb contained Si; (a), (c), (d) (50% Si) 14.60c

FERROTITANIUM: low carbon – lb contained Ti; ton or more lots, lump (½ in.), packed, f.o.b. dest. NE U.S. – (40% Ti, max 0.10% C) $1.35
(25% Ti, max 0.10% C) $1.50
Medium Carbon – net ton; (a), lump, packed; f.o.b. dest. NE U.S. – (17 to 21% Ti, 3-5% C) $290-5
High carbon – basis as for Med. carbon – (15 to 19% Ti, 6 to 8% C) .. $240-5

FERROTUNGSTEN: lb contained W; lots of 5,000 lb or more, lump (¼ in.), packed; f.o.b. dest. cont. U.S.–(70-80% W) (n) $2.15

FERROVANADIUM: lb V; (a), var. sizes, packed; f.o.b. U.S. – (50-55% V)
open hearth $3.20
crucible $3.30
high speed $3.40

SILICOMANGANESE: lb; (a), (c), (d).
(1.5% C max 18-20% Si) 11.60c
(2% C max 15-17½% Si) 11.30c
(3% C max 12-14½% Si) 11.10c

SPIEGELEISEN: per gross ton; (a), (c) f.o.b. Palmerton, Pa., Pittsburgh
3% max Si, 16-19% Mn $98.00-100.50
3% max Si, 19-21% Mn $100.00-102.50
3% max Si, 21-23% Mn $102.50-105.00
Eff. on orders of Jan. 22, 1960

WATCH THESE TRENDS

TIN added to titanium-base alloys is claimed to counteract to some extent the harmful effects of interstitial impurities such as oxygen and nitrogen. Once titanium, and also zirconium, become contaminated with either, they cannot be removed, reports the International Tin Research Council.

THREE AND ONE-HALF PERCENT NICKEL STEEL, because of its ability to resist brittleness at temperatures as low as −150°F, was used in the construction of three brine storage tanks at Wright-Patterson Air Force Base. The tanks are used to simulate temperature and velocity changes in aircraft moving from sea level to 90,000 ft.

NEW COLORED STAINLESS STEEL will give architects, builders and manufacturers wider play for their imaginations, Allegheny Ludlum Steel Corp. predicts. Colors, at present black and brown, are achieved through a chromate-base coating applied before high-temperature curing.

CANADIAN ASBESTOS PRODUCERS are rejoicing over a new use for surplus-supply "Group 7" asbestos fibers in paving. Known as "shorts" or "refuse," it makes up an estimated 75% of Johns-Manville's mine output. The potential market for road surfaces is about 500,000 tpy. Asbestos-asphalt paving reportedly produces a tougher, safer road surface.

A LEAD AND PLASTIC PUTTY-LIKE material named Devcon L is being marketed by Devcon Corp. of Danvers, Mass. Made of 94% lead powder and 6% resin, the material can be formed into any shape before curing and sawed, drilled or machined when hard. It is used in bonding, sealing, lining, weighting and as an adhesive.

ALUMINUM has gained a foothold in the aerosol container market. The Rexall Drug Co. recently ordered 250,000 from Modern Containers Ltd. of Toronto. The cans, bought on the basis of straight price competition with tin plate, feature shipping and handling economies, a bright surface, seamless, one-piece construction and flexibility of shape, the ALCAN INGOT reports.

ELECTRODEPOSITED RHODIUM on uniselector contacts has helped reduce tarnish film in cases where uniselectors are required to handle lower voltage levels than those encountered in telephone and telegraph exchange equipment, according to the PLATINUM METALS REVIEW.

HOT-DIPPED GALVANIZED storage tanks have found a growing market in the oil fields, particularly in the Gulf Coast region, owing to their resistance to hydrogen sulfide and salt water contained in the crude oil. Galvanized tanks last twice as long as do painted steel units, THE ZINC SPOTLIGHT said.

MULTIWAVE, AN ALUMINUM SANDWICH core, developed by Narmco Resins & Coatings Co., offers all the advantages of conventional honeycomb, but with added flexibility – even through 180° longitudinal turns. It is being used as the core for wing flap leading edges and access doors and for the bulk material in plastic tooling, according to the ALCOA NEWS-LETTER.

TERNE ROOFING NOW SEAMLESS is currently regaining its lost popularity. The two-century-old building material, known for its durability and lightness, is now being made in 50-ft seamless rolls instead of conventional sheet. In the new form, it is more easily and economically applied. Typical costs run about 50-75c per sq ft.

POLYETHYLENE is being introduced as a secondary shield for nuclear reactors and other atomic energy applications, American Agile Corp. reports. The material's major asset is its ability to shield neutrons. It does not absorb radiation, is easy to clean and decontaminate, is light-weight and unbreakable.

A MAN-MADE DIAMOND for metal bonded grinding wheels has been developed and made commercially available by the Metallurgical Products Department of General Electric Co. Available in sizes up to 100 mesh, they will be used for lens laps, glass grinding, electrolytic grinding and conventional grinding on cemented carbide. Also, for shaping synthetic sapphires, cutting germanium and quartz and grinding ceramics for missile components.

KAISER ALUMINUM has developed a new series of heat treatable aluminum alloys and a chrome-plating process especially for automobile bumpers. Manufacturers are hoping to produce bumpers at costs competitive with steel. Auto producers are anxious to reduce front and rear weight; aluminum bumpers are 50%-60% lighter than standard.

SILVER, GOLD, PLATINUM and other precious metals are being refined from scrap at the Irvington-Baker Division of Engelhard Industries Inc. in Newark in the world's largest and most modern precious metal scrap operation. New equipment now enables the company to refine materials of extremely low-grade content, "all the materials used in the precious metals industry," the company boasts.

NICKEL SUBSTITUTED FOR IRON in the binder of tungsten carbides improves the strength and hardness of carbide compacts, the Office of Technical Services (BDSA), Department of Commerce reports.

DELRIN THERMOPLASTIC, a tough, rigid acetal resin is being used to make windshield washers on 1960 Fords and Mercurys. The material, manufactured by Du Pont, is challenging zinc, aluminum and magnesium in the automotive die casting field with its light weight, low cost and corrosion resistance.

ELEMENTAL SULPHUR may soon be produced from sulphur dioxide in smelter gas, according to CHEMICAL ENGINEERING. International Nickel and Texas Gulf Sulphur are trying a process in which SO_2 in roaster gas is reduced with natural gas, propane or fuel oil at moderately high temperatures over a special unidentified catalyst.

FOAMED METALS, now commercially available, often weigh as little as one-tenth that of a similar object of solid metal. Foaming is achieved by mixing a chemical with the molten metal, which acts as does baking soda on bread dough. The product is used in aircraft and structures which require strength with minimum weight, such as boat hulls, building panels and road surfacing.

GADOLINIUM AND EUROPIUM are being used as light-weight radiation shielding of nuclear aircraft and space vehicles. Other rare earths are winning acceptance for use in optical glass, high temperature batteries, thermoelectric power and rocket fuels.

No.4 of a series about

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E&MJ QUOTATIONS

Daily Prices of Metals

Apr.	COPPER ELECTROLYTIC Domestic Refinery	Export Refinery	Europe c.i.f.	LEAD New York	LEAD St. Louis	ZINC (b) Delivered (a)	ZINC (b) East St. Louis	ALUMINUM Primary Pig 99.5% U.S. dest.	ALUMINUM Primary Pig 99.5% Export	TIN Straits New York
14	32.600	31.325	32.270	12.000	11.800	13.500	13.000	26.000	23.250	99.125
15	32.600	Holiday	Holiday	12.000	11.800	13.500	13.000	26.000	23.250	99.125
18	32.600	Holiday	Holiday	12.000	11.800	13.500	13.000	26.000	23.250	99.000
19	32.600	31.725	32.670	12.000	11.800	13.500	13.000	26.000	23.250	99.000
20	32.600	31.975	32.920	12.000	11.800	13.500	13.000	26.000	23.250	98.875
Averages	32.600	31.675	32.620	12.000	11.800	13.500	13.000	26.000	23.250	99.025
Calendar Wk. Avgs.										
Apr. 11-15	32.600	31.363	32.308	12.000	11.800	13.500	13.000	26.000	23.250	99.225

(a) Prime Western Zinc sold on delivered basis at centers where freight from East St. Louis exceeds one-half cent a pound.

The above quotations are our appraisal of the major United States markets, based on sales reported by producers and their agencies. They represent payments received by producers for the product. They are reduced to the basis of cash, New York or St. Louis, as noted. Prices in cents per pound.

Copper, lead and zinc quotations are based on sales for prompt and future deliveries; aluminum weighted average prices are based on estimated sales and announced prices; tin quotations are for prompt delivery only.

COPPER prices, domestic, in the trade are quoted on a delivered basis, that is, delivered at consumer's plants. Delivery costs vary with the destination. The above prices are net prices at the refineries; the average shipment cost is deducted in order to arrive at a refinery price. Beginning Jan. 2, 1957, the average differential between delivered and f.o.b. prices is taken as 0.400c per lb.

COPPER quotations, foreign or export, reflect prices obtaining in the open market and are based on sales in the foreign market reduced to the f.o.b. refinery equivalent. Atlantic seaboard. On f.a.s. transactions, eff. Jan. 2, 1957, we deduct 0.125c for lighterage, etc., to arrive at the f.o.b. refinery quotation.

COPPER, Europe, c.i.f., is the export refinery quotation with the addition of the lighterage figure 0.125c, and freight to main Continental ports, 0.82c.

COPPER quotations are for ordinary forms of wirebars and ingot bars. The premiums on special shapes, effective in some instances on deliveries beginning Sept. 1, 1955, are: Standard ingots 0.25c per pound; slabs 0.55c and up, cakes 0.6c and up, depending on weight and dimensions; billets 1.725c and up, depending on dimensions and quality. Discount on cathodes 0.125c to 0.15c per pound.

ZINC quotations reflect sales of the Prime Western grade as well as sales of other grades when sold on a Prime Western basis. (b) **Zinc premiums . . .** obtaining over Prime Western zinc in the East St. Louis market on the following grades, in cents per pound: **Selected 0.10c; Brass Special 0.25c; Intermediate 0.5c. High Grade** zinc sold on contract, delivered to the consumers' plants, commands a premium of 1½¢ per lb for current delivery, Apr. 1, 1960, over the East St. Louis basis for Prime Western. **Special High Grade** premium or differential is 1¾¢ per lb for current delivery, beginning Apr. 1, 1960.

LEAD quotations are for the common grade, and are based on sales of domestically refined metal sold to domestic consumers. The differential on sales in the Chicago district is 15 points under New York; for California 20 points under New York; for New England add 7½ points to the New York basis. Corroding grade commands a premium over common lead of 10 points.

ALUMINUM quotations refer to primary pig 99.5% in cents per pound. The U.S. price is delivered to buyers' plant; it includes sales by Canadian producers. The export price is the price at which U.S. primary producers sell c.i.f. (delivered) foreign ports. The quotations are weighted averages with the weights determined by the relative capacity of the producers. Ingot sales reduced to the pig price are included in determining the price. The premium on standard ingots is 2.1c per lb.

Note: The daily quotations for copper, lead and zinc are weighted averages of sales reported to *E&MJ;* weekly averages are arithmetical averages of the daily quotations; monthly averages are the arithmetical averages of the daily quotations.

Silver, Gold, and Sterling Exchange

Apr.	Silver N.Y.	Silver London	Sterling Exchange	London Gold (a)
14	91.375	79.000d	280.9780	249s. 10¾d.
15	91.375	Holiday	280.9700	Holiday
18	91.375	Holiday	280.9520	Holiday
19	91.375	79.000d	281.0040	249s. 10¼d.
20	91.375	79.000d	281.0400	249s. 10¼d.
Av.	91.375	—	280.989	—
Calendar Wk. Avgs.				
Apr. 11-15	91.375	—	280.941	

(a) Open Market

The daily silver quotation reported by Handy & Harman, in cents and fractions of a cent per troy ounce, is the price paid by Handy & Harman in settlement for silver contained in unrefined silverbearing materials submitted to them for refining. It is determined on the basis of offers of bar silver .999 fine as made to Handy & Harman for nearby delivery at New York by regular suppliers in quantities sufficient to meet daily requirements, and it is usually one quarter cent below the price at which such offers are made.

The Treasury's purchase price of newly mined domestic silver was established at 90.5c per troy ounce, 1000 fine, effective on July 1, 1946 under an amendment to the Silver Purchase Act of July 6, 1939.

London silver quotations are in pence per troy ounce, basis .999 fine.

London gold quotations are per troy ounce, basis 1000 fine.

Sterling, in cents, noon buying rate for cable transfers as certified by the Federal Reserve Bank of New York, for customs purposes.

Aluminum Alloys Secondary Apr. 14-20

	Tons	Price/lb
No. 13	21	25.56c
No. 43	25	25.67c
No. 360		No Quote
No. 380		
1% Zn	233	25.05c
2% Zn	218	24.75c
3% Zn	118	24.26c

The secondary aluminum alloy prices are weighted average prices calculated from reports by secondary aluminum producers of the prices and quantities of their sales.

London Metal Exchange

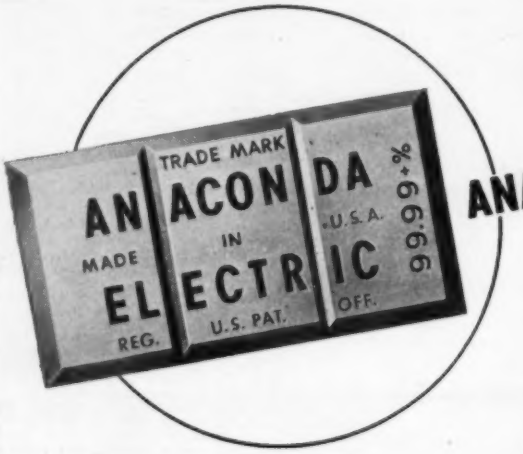
Apr.	COPPER Cash Bid	COPPER Cash Asked	COPPER 3 Mo. Bid	COPPER 3 Mo. Asked	LEAD Current Month Bid	LEAD Current Month Asked	LEAD 3 Mo. Bid	LEAD 3 Mo. Asked	ZINC Current Month Bid	ZINC Current Month Asked	ZINC 3 Mo. Bid	ZINC 3 Mo. Asked	TIN Cash Bid	TIN Cash Asked	TIN 3 Mo. Bid	TIN 3 Mo. Asked
14	266	266½	244¾	245	77⅜	77½	76⅝	76¾	92	92¼	89⅛	89½	787	788	784½	785
15	Holiday															
18	Holiday															
19	265	265½	245	245¼	77½	77¾	76⅝	76¾	92	92¼	89¼	89½	786½	787½	784	784½
20	264½	265	245½	246	77¾	77⅞	76⅞	77	92	92¼	89¼	89½	787½	788½	783½	784

Prices are for the official a.m. session in pounds sterling per ton of 2240 lb. Copper oasis electrolytic and fire refined wire bars, lead 99.97%, zinc 98% and tin min. 99.75%.

THIS WEEK'S BUSINESS INDICATORS

	Latest Week	Preceding Week	Month Ago	Year Ago	Net Change Year Ago
Steel Rate (% of capacity in operation)	(d) 80.9	(a) 78.1	96.0	97.8	−16.9
Steel Ingot Production, thousands of tons	(d) 2,305	(a) 2,225	2,597	2,646	−341
Automobile Production (cars and trucks)	(d) 173,492	(a) 171,080	183,563	172,715	+777
Electric Power Output (millions kwh.)	13,494	13,542	14,271	12,604	+890
Engr'g Const. Awards, 4-week daily av., in thousands (c)	$78,994	66,296	62,323	62,237	+$16,757
Federal Reserve Index of Industrial Production (b)	(d) 110 Mar.	....	110	104	+6
E&MJ Index of Nonferrous Metal Prices (e)	125.9 Mar.	....	126.6	119.9	+6.0
All Commodities, Bureau of Labor Statistics (e)	(a) 120.0 Mar.	....	119.4	119.6	+.4

(a) Revised. (b) Base (100), 1957. (c) From Eng. News-Record. (d) Preliminary. (e) Base period (100) is 1957



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1960 Casting Congress In Philadelphia May 9-13

New developments covering practically every phase of foundry operation and castings technology will be explored at the 1960 Castings Congress & Exposition in Philadelphia May 9-13, according to Wm. W. Maloney, general manager of the sponsoring American Foundrymen's Society.

Except for those engineering, cost, educational and special sessions of broad interest — all papers, discussions and symposia are grouped by type of castings including: brass & bronze, the light metals aluminum and magnesium, ductile iron, gray iron, malleable iron, steel, die castings and permanent mold castings. A number of sessions on foundry sands and patternmaking will also be held.

Among the 217 speakers and panelists are 30 researchers and professors from leading U.S. and foreign Universities. Included in this group is Julian A. Nekhendzy, dean of Foundry Production, Leningrad Polytechnic Institute, Leningrad, Russia, who will discuss foundry practice in the USSR. Other foreign speakers will come from Belgium, England, Australia and Germany.

"The entire program is designed to introduce all the newest developments and improvements for the foundry from part design, patternmaking, processing and quality control to marketing of the finished product. In addition, many original papers covering basic and applied research findings will be presented," Maloney said.

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U.S. Lead and Zinc Imports

Imports of lead and zinc for the second quarter of 1960 were the following, in short tons, at about 3:20 pm April 19, according to data from the U.S. Customs Bureau.

Lead Ore

Country	entered	quota
Australia	filled	5,040
Canada	filled	6,720
Peru	2,803	18,440
Bolivia	1,451	2,520
U. of S. Africa	4,055	7,440
Other	785	3,280

Lead Metal

Country	entered	quota
Australia	5,711	11,840
Canada	1,542	7,960
Peru	400	6,440
Mexico	1,645	18,440
Yugoslavia	1,714	7,880
Other	filled	3,040

Zinc Ore

Country	entered	quota
Canada	23,508	33,240
Mexico	9,350	35,240
Peru	1,642	17,560
Other	filled	8,920

Zinc Metal

Country	entered	quota
Canada	3,245	18,920
Mexico	0	3,160
Peru	300	1,880
Bel.-Lux.	663	3,760
Bel. Congo	0	2,720
Italy	676	1,800
Other	782	2,040

U.S.S.R. Expands Iron Ore Capacity; Leads World

Vienna, Austria (McGraw-Hill World News) — The U.S.S.R. exceeded the United States in iron ore output, according to Tass, and thus lead the world's iron ore producer's list. Double the 1958-commissioned iron ore mining capacity went onstream last year, and 1960-installed capacity is to match that made during the last Five-Year Plan.

Productivity of several important centers increased considerably: some units of the Kriwoj Rog (Ukraine) boosted productivity by 20% per worker, while raising production by 15%. It is planned that 75% of all Soviet iron ore mines will be worked in open-pit operations by the end of the current Seven-Year Plan, e.g. during 1965.

Among the new, large-scale iron ore operations will be Central Kazakhstan where, at the border of the Bet-Pak-Dala, deposits were discovered estimated at 500-million metric tons.

This means that deposits there are equal in size to the combined deposits of Belgium, Italy, Norway, Portugal and Switzerland — the ore possessing an iron content which is higher than those of the best Swedish ore. The ore will be mined in open-pit operation, to serve the near-by iron and steel center now under construction. An underground iron ore mine, with a 2.2-million metric tons annual capacity is also under construction there.

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Vuillequez Elected Head of Lead Industries Association

Jean Vuillequez, American Metal Climax Inc., was elected president and chairman of the board of the Lead Industries Association at its recent annual meeting in St. Louis.

Joseph A. Costello, The Ethyl Corp.; Charles R. Ince, St. Joseph Lead Co.; and Simon D. Strauss, American Smelting and Refining Co., were elected vice presidents. Robert L. Ziegfeld continues as secretary-treasurer.

producers of:

Antimonial Lead	*Fluorspar*	*Selenium*
Antimony	*Germanium Concentrates*	*Silver*
Antimony Oxide	*Gold*	*Sulfur Dioxide, Liquid*
Arsenic	*Indium*	*Sulfuric Acid*
Asbestos	*Lead*	*Tellurium*
Bismuth	*Lead, Test*	*Thallium*
Cadmium	*Litharge, C. P.*	*Thallium Sulfate*
Cadmium Oxide	*Molybdenum Concentrates*	*Zinc*
Cadmium Sulfide	*Nickel Salts*	*Zinc Dust*
Copper		*Zinc Sulfate*

ASARCO

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120 BROADWAY, NEW YORK

Magnesium Output Up

Commercial production of primary magnesium during the first quarter of 1960 was 10,055 tons, according to the Bureau of Mines, U.S. Department of the Interior. This was a rise of 8% above production in the fourth quarter of 1959, and 82% above the first quarter of 1959. The electrolytic plant at Freeport, Tex., and the silicothermic plants at Canaan, Conn., and Selma, Ala., were in operation. Titanium Metals Corp. recycled magnesium as an integrated operation of its production of titanium at Henderson, Nev.

U.S. production and shipment data, by quarter, follow:

1959	Output	Shipments
January-March	5,527	10,328
April-June	7,254	12,442
July-September	8,663	11,952
October-December	9,589	12,810
Total	31,033	47,532
1960		
January-March	10,055	11,500

Titanium Ingot Production Unchanged In February

Production of titanium ingot totaled 967,850 lbs in February compared with 965,414 lbs in January, according to U.S. Census data. Domestic consumption totaled 945,070 lbs of ingot in February and 848,473 in January.

Production of products in short tons, by product, follow:

Product	Feb.	Jan.
Titanium Mill Products, Total	248	399
Sheet, plate, strip	57	87
Forging, extrusion billet	123	211
Rod, bar, wire	68	101

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Copper Sulfate Output Up

Production of copper sulfate in the United States in February 1960 totaled 3,500 tons, 5% more than in January 1960 and was the largest since June 1959, according to the Bureau of Mines, U.S. Department of the Interior. Shipments in February were virtually unchanged from the preceding month, but were 300 tons greater than production, and stocks gained 15%. At the February rate of shipments, stocks were sufficient for almost one month's requirements.

Imports of copper sulfate in January totaled 430 tons, of which 330 tons came from Canada and 100 tons from the United Kingdom. Imports for February are not yet available. Exports of copper sulfate in February totaled 338 tons.

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Iron, Steel

PIG IRON — Per gross ton Valley furnaces: Bessemer, $67.00, basic, $66.00 and No. 2 foundry $66.50.

STEEL — Per net ton, f.o.b. mill, Pittsburgh, billets and slabs, $80.00; Bars per 100 lb, $5.675; plates and structural shapes, $5.30@$5.50.

London Copper Prices

The following prices in £ sterling per long ton c.i.f. European ports are calculated by the London Metal Bulletin (see M&MM Feb. 13, 1958, p 3).

Apr. 11 .....256.605	Apr. 14 .....
Apr. 12 .....257.174	Apr. 15 Holiday
Apr. 13	
Av.	

Data will be published Apr. 28

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Brass and Bronze Ingot

85-5-5-5 (No. 115) 29¼c; 80-10-10 (No. 305) 33¾c; 88-10-2 (No. 215) 38¾c; Yellow (No. 405) 23¾c; and upward Manganese bronze (No. 420) 27¼c.

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Tri-State Concentrates

Joplin, April 19, 1960

(a) Blende	Per Ton
Prime coarse (60% zinc)	$80
Flotation, 60% zinc	$80

(a) Effective Jan. 8, 1960

Galena	
Coarse and flotation, 80% lead	(a)$141.72

(a) Effective Dec. 21, 1959

•

Lead Average (Monterrey)

The net price realized by the American Smelting & Refining Co. on all of its sales of Mexican pig lead, including metal sold for consumption in Mexico, during the week ended April 16, 1960, was 9.16c (U.S. per lb. f.o.b. refinery) Monterrey, Mexico.

Dealers' Scrap Prices

Dealers' buying prices, f.o.b. New York or equivalent freight points, for wholesale quantities, in cents per lb.

No. 1 copper wire	23–23½
Heavy copper & wire, mixed	21–21¾
Light copper	19–19½
No. 1 composition	17-17½
Composition turnings	15½–16
Light brass	10½–11
Yellow brass turnings, mix	10½–11
Heavy yellow brass, mixed	11½–12
Auto radiators, unsweated	12¾–13
Brass pipe, cut	13½–14
Rod brass turnings, No. 1	12–12½
Rod ends, brass	12–12½
New soft brass clips	14–14½
Cast aluminum, mixed	11–11½
Aluminum crankcases	11–11½
Aluminum clips, new soft	15–15½
Sheet aluminum, old clean	11–11½
Aluminum turnings, clean	6–6½
Zinc die cast, mixed	1½–2
Zinc die cast, new	4¼–4½
Old zinc	4½–5
New zinc clips	7–7¼
Soft or hard lead	8¼–8½
Battery plates	3–3¼
Babbitt mixed	9½–10
Linotype or stereotype	9–9½
Electrotype	8–8½
Solder joints close cut	13½–14
Block tin pipe	78–79
Autobearing babbitt	40–41
Monel Clips, new	28–29
Monel sheet, clean	24–26
Nickel, rod ends	52–54
Nickel, clippings	52–54

Smelters' Aluminum Alloys

Delivered prices of smelters' aluminum ingot, per pound, in lots of 10,000 lb or more.

Piston alloy D132 28-29c. No. 12 alloy 24¾-25¼c. No. 13 alloy, max. .30 copper, 25¾-26c.

Deoxidizing grades: No. 1, 25¼-25½c; No. 2, 24½-24¾c; No. 3, 23½-24c; No. 4, 22¼-22¾c.

See page 9 for casting alloys.

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Smelters' Copper Scrap Prices

Custom smelters' buying prices for scrap, carload lots, refinery:

No. 1 copper and wire, 27c; No. 2 heavy copper 24½c; light copper, 22¼c; refinery brass, 22½c.

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A Custom Smelter Copper Price April 14-20

The following prices are computed by M&MM from data on flat price and average price sales reported by the American Smelting & Refining Co. They refer to electrolytic copper in standard shapes.

Delivered consumers' plants	32.750c
F.O.B. refinery	32.350c

They are for sales in the U.S. market and are adjusted to the nearest one-eighth cent. A one-quarter cent deduction for selling commission has been made.

N.Y. Commodity Exchange

	COPPER					LEAD				ZINC				TIN			
	May		July			May		July		May		July		May		July	
Apr.	Bid	Asked	Bid	Asked	C	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked	Bid	Asked
14	29.92	29.92	28.90	28.90	216	11.38	11.40	11.51	11.56	11.53	11.60	11.65	11.74	•	•	•	•
15							Holiday							•	•	•	•
18	29.91	29.91	28.73	28.75	72	11.35	11.38	11.50	11.55	11.50	11.60	11.65	11.75	•	•	•	•
19	29.87	29.87	28.70	28.70	122	11.35	11.38	11.50	11.55	11.50	11.58	11.65	11.75	•	•	•	•
20	30.04	30.04	28.85	28.85	148	11.30	11.32	11.45	11.50	11.50	11.50	11.65.	11.68	•	•	•	•

*Trading suspended.

Closing quotations on the N.Y. Commodity Exchange in cents per lb. C is number of contracts traded for the seven months of the year for which the Exchange accepts trading. Each contract is for 25 tons. Where bid and asked prices are the same, closing quotation was one at which transactions occurred.